SWEET SUCCESS:
DIABETES AND PREGNANCY NEWSLETTER
FROM CDAPP REGIONAL PROGRAMS

2010

Volume 8, Issue 2

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This project is supported in part by Title V funds received from the California Department of Public Health, Maternal, Child, and Adolescent Health Program.

Economic Barriers to Glucose Management

Jacqueline Masullo, LCSW, CDAPP Region 2

One aspect of being a perinatal social worker is to assess the socioeconomic status of patients. The range of financial stressors varies from challenges with affordable child care to accessibility of food and housing. There are usually programs in the community that offer resources for clients.

However during the last few years, the downward economy has posed challenging barriers to Sweet Success patients; particularly to women who have pregnancy only Medi-Cal. Programs such as Denti-Cal, county mental health, and food banks have long waiting lists, limited resources, or have completely stopped services. As the financial stressors increase, pregnant women are finding it harder and harder to self-manage their blood sugar levels due to depressed and anxious feelings. Some women are unable to access Sweet Success care due to limited coverage or excessively high insurance deductibles. Women are limiting the number of times they check their blood sugar levels due to the high cost of test strips. Finally, others have minimal access to fresh meats, fruits and vegetables; relying on a high carbohydrate meal plan.

Sweet Success providers are also feeling the burden of the economy. Some providers have shared feeling overwhelmed with high case loads and patients who appear unmotivated. When county health clinics do not offer care to the uninsured, providers may feel hopeless/helpless for their diabetic patients' health care. Providers went into the healthcare field to help and make a difference in people's lives. However, with limited resources and patients with increased barriers to care (mental illness, no transportation, limited food); providers are facing strong oppositions to their recommendation for quality care.

Some California Sweet Success affiliates have developed strategies and approaches to help Sweet Success patients in this depressed economy. One Northern California affiliate has created a small clothing exchange in their clinic. Women with extra or gently used maternity or newborn clothes donate them to the clinic. The staff donates grocery gift cards for patients who run out of food. Another affiliate in San Francisco, offers phone consultation for women waiting for their Medi-Cal coverage to begin. The Sweet Success staff are unable to bill for phone services but provide it anyway.

An affiliate in Southern California has utilized Black Infant Health and churches for resources.

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Extended family members and neighbors are showing a strong commitment to each other by helping with rides to appointments and with food supply.

A physician assistant in a small rural Sweet Success program north of Sacramento visits mothers in their home shortly after delivery. She feels that pregnancy offers health care providers an opportunity to give more care to women. These extra efforts have strengthened her relationship with the mothers and subsequently improved healthy outcomes for both the mother and the child.

Finally, due to the increase work load and acuity of Sweet Success patients, it is critical for health care providers to balance their own needs. Exhaustion and difficult cases may lead to burnout and hinder patient/provider relationships. Daily breaks and routine vacations give one the needed rest during these difficult financial times. How do we deal with the difficulties that are thrown our way and the additional burdens that our moms are carrying? With a "coming together" of caring and sharing stories, with more listening and being present for the frustrations that arise, with idea sharing and hopefully with a reduction of isolation that often ensues when we all struggle with these issues, we will help support each other through these hard times.

For further patient educational materials, please see the California Department of Public Health website under Consumer Information at http://www.cdph.ca.gov/programs/cdapp/Pages/default.aspx

Vitamin D Deficiency in Pregnancy

Sherrie McElvy, MD, Sutter Medical Center Sacramento, Region 2 Medical Director

Vitamin D, a known essential nutrient, resurges as a "hot topic" due to an epidemic deficiency. Historically, we have known the association of vitamin D deficiency with rickets or osteomalacia. Now evidence [1] has emerged with implications far beyond rickets and includes adverse effects to pregnant women and their newborns [1,2].

There are 2 forms of vitamin D important to humans: ergocalciferol (Vitamin D2) and choleciferol (vitamin D3). Vitamin D3 shows superior bioavailability [3]. While there are many sources of Vitamin D (fish, egg, milk, margarine, supplements and sunlight), our current lifestyles have decreased the intake of vitamin D rich foods and limited sun exposure. As a result, we are deficient.

The test recommended for assessing vitamin D status is a serum measurement of 25 – hydroxy vitamin D. While there is uncertainty where to set the level for deficiency, most accept less than 30 ng/mL as deficient.

"A conservative dose of 2000 IU daily is recommended…"

Pregnant women like the general population are vitamin D deficient [2,4]. There are observational studies that report vitamin D deficiency is associated with an increased risk of preeclampsia. In a study by Wagner and Hollis, they reported a reduction in prematurity with higher dose vitamin D supplementation and no adverse effects with doses up to 4000 IU daily.

Newborns and breast fed infants of women that are vitamin D deficient are at risk for deficiency. Whether newborn vitamin D deficiency is the result of maternal deficit antenatally or breast milk deficit postnatally, it is associated with lower bone mineral content [5].

Recent studies link low levels of vitamin D to diabetes [6]. Epidemiologic studies from Finland, supports an increased risk for type 1 diabetes if vitamin D levels are low. As well, adults with type 2 diabetes, if given supplements, were found to improve their insulin sensitivity.

Now during this time of epidemic deficiency there is a dilemma regarding what amount of vitamin D to recommend. At this time, testing everyone is not recommended; however, it is feasible to test high risk groups (women with dark pigmented skin, living at northern latitudes, and winter season). In 1997 the safe "tolerable upper intake level" of vitamin D was set at 2000 IU daily by the Institute of Medicine (IOM). A conservative dose of 2000 IU daily is recommended to maintain adequate vitamin D levels. The new IOM recommendations are due Fall 2010.

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Bits and Pieces: Edinburgh Postnatal Depression Scale (EPDS) and Perinatal Depression

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Many thanks to our affiliates who integrated their care of pregnant women with diabetes to include the EPDS in their work. Below are offerings of interest related to perinatal depression you may find useful.

- Do you need educational material for women and their families? Try www.MedEdPPD.org for a well-done brochure downloadable in English and Spanish. Although focused on postpartum depression, the concise and comprehensive information is appropriate for antenatal depression as well. The Health Resources and Services Administration (HRSA) website: www.HRSA.gov has an excellent, informative booklet: Depression During and After Pregnancy. Be aware that these patient educational materials have a high reading level and are not suitable for all women.
- Wanting more information yourself now that your interest in perinatal depression has been piqued and more questions arise? Again try www.MedEdPPD.org for a wealth of specialized material for professionals including multimedia CME/CE, resources, provider tools, slide library, emergency assessment, news and research updates, and ezine sign-up. Mass General (MGH) Center For Women's Mental Health www.womensmentalhealth.com provides cutting edge research, clinical trials and materials for professionals and moms alike. To see what our more evolved cousins are doing click on www.beyondblue.org.au to view Australia's national depression initiative and what they have developed.
- Keep in mind: as helpful as the EPDS can be for screening, it uses a psychological focus in describing symptoms of anxiety and depression. A woman's culture greatly influences how she describes what we call "depression". Stomachaches and dizziness are somatic symptoms that the EPDS does not address and can be common descriptors for women from diverse cultural backgrounds.
- Raising our awareness: We are hearing more about maternal depression and Perinatal Mood and Anxiety Disorders (PMAD). The recently passed Health Care Reform Bill includes funding and support for postpartum depression and in the past year significant articles in academic journals and the popular press have been published. Expect support for you too as conferences and trainings add PMAD to their sessions.

International Association of Diabetes in Pregnancy Study Groups (IADPSG): 2010 Recommendations on Diagnosis & Classification of Hyperglycemia in Pregnancy With Suggested Implementation Strategies

Maribeth Inturrisi, RN, MS, CNS, CDE

For the past 46 years, gestational diabetes (GDM) has been diagnosed based on maternal outcome criteria only with the risk for the mother to develop type 2 diabetes in her future. (O'Sullivan, Diabetes 1964)

Providers have not had evidence-based criteria that identify pregnancies at risk for adverse perinatal outcomes. Overt diabetes (type 1 and type 2) clearly increases the risk of adverse pregnancy outcomes but what are the risks of adverse perinatal outcomes associated with lesser degrees of hyperglycemia? There has been a lack of uniformity among providers in the United States and internationally as to which approach to use to diagnose GDM, either the two step approach or the one step approach.

The two step approach begins with a 50 gm Glucose Challenge Test (GCT), if positive, it is followed by an Oral Glucose Tolerance Test (OGTT) obtaining fasting and hourly plasma glucoses for 2 or 3 hours ; a positive test being either 1 abnormal value or two abnormal values.

The one step approach consists of screening all women with a 2 hour 75 gm OGTT (Europe and Canada). Blood glucose criteria recommendations for a positive test varies between organizations such as American Diabetes Association (ADA), World Health Organization (WHO), European Association for the Study of Diabetes (EASD), and Australasian Diabetes in Pregnancy Study (ADIPS).

Results from the HAPO (Hyperglycemia and Adverse Pregnancy Outcomes) Study, an investigator-initiated multicenter, international observational study of 23,000 women showed continuous associations between maternal glycemia and perinatal outcome after adjustment for maternal age, family history and BMI. Associations did not differ among centers. For details of this study see the publication: Hyperglycemia and Adverse Pregnancy Outcomes, NEJM, 2008; 358:1991-2002. These results can be used globally to develop "outcome based" criteria for classifying glucose metabolism in pregnancy. The next step was to convene an expert panel of endocrinologists, perinatologists, scientists, educators, statisticians representing American College of Obstetrics and Gynecology (ACOG), ADA, WHO, Centers for Disease Control (CDC), International Diabetes Federation (IDF), American Association of Diabetes Educators (AADE), Europe, Canada, South America, Australia, and the Near and Far East.

From these experts, The International Association of Diabetes in Pregnancy Study Groups (IADPSG) appointed a Writing Group to examine the HAPO data and translate it into recommendations for clinical practice. Blood glucose cut off points were based on odds ratios for LGA, fat, and/or hyperinsulinemic babies. The question to be answered was how much risk is too much? For details of this process please refer to the publication in Diabetes Care, volume 33, number 3, March 2010: International Association of Diabetes and Pregnancy Study Groups Recommendations on the Diagnosis and Classification of Hyperglycemia in Pregnancy.

The thresholds in Diagram 1 are the average glucose values at which the odds for neonatal birth weight greater than the 90th percentile, cord C-peptide greater than the 90th percentile, and percent body fat greater than the 90th percentile reached 1.75 times the estimated odds of these outcomes at mean glucose values. The diagnosis is done using the one step: a 75 gm OGTT at 24-28 weeks gestation in all women not previously diagnosed with diabetes. In this approach, there is no Glucose Challenge Test. Testing is universal, not risk based. By these criteria, the total incidence of GDM will be up to 17.8% versus the present incidence of 7-14%. This is consistent with the current incidence of diabetes (10%) and prediabetes (19%) in the United States today. Since this test will require an 8-12 hour overnight fast, it is suggested that it be done with the third trimester routine blood tests to minimize lab visits and blood draws.

Another task assumed by the IADPSG writing group was to identify a way that previously undiagnosed type 2 diabetes could be diagnosed in pregnancy. Identification of diabetes as soon as possible during pregnancy and rapid normalization of blood glucose could decrease its associated morbidity: increased risk for congenital malformations, the possibility of retinopathy and nephropathy requiring treatment during pregnancy and the need for increased maternal and fetal surveillance.

The IADPSG recommends that any of the tests done for overt diabetes outside pregnancy could be used at the first booking of prenatal care and that criteria for overt diabetes outside of pregnancy be used. Most of the Consensus Panel favored the use of the hemoglobin A1c because it could easily be added to the prenatal panel, doesn't require fasting, doesn't require nauseating glucola, and combines glucoses from both the fasting state and the postprandial state. Fast-

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ing glucose during pregnancy is least desirable as fasting blood glucose becomes lower beginning in the first trimester. The hemoglobin A1c lacks validity if the woman has a hemoglobinopathy. In such cases, other tests (75 gm OGTT or a random glucose) may be used.

From our own Sweet Success providers come the following suggestions: Diagram 2 depicts one algorithm for differentiating between type 2 diabetes and early diagnosis of GDM (first trimester) using the hemoglobin A1c. Those diagnosed early do not require testing again later in pregnancy.

Diagram 3 depicts one algorithm for different levels of management once diagnosed.

These recommendations answer some questions but raise even more. We would love to hear your questions, reactions, concerns, and suggestions.

Please email your questions to maribeth.inturrisi@nursing.ucsf.edu Stay tuned for the next newsletter. edition for your questions and we will do our best to answer them.

Diagram 1: IADPSG 2010 Recommendations for Diagnosing GDM

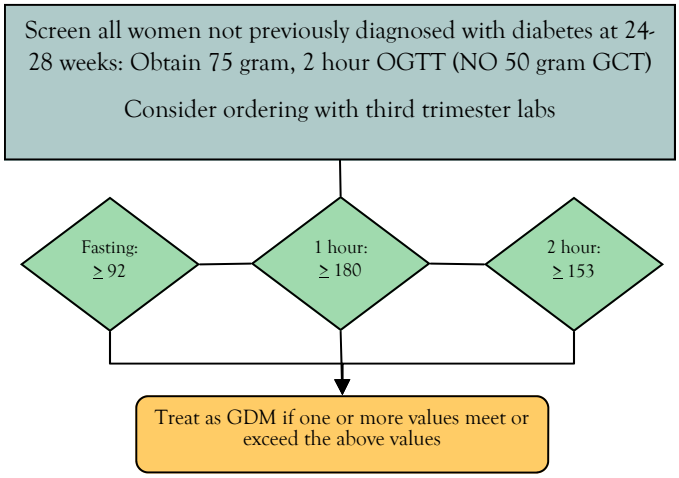

Diagram 2: Early screen to rule in overt diabetes and early GDM

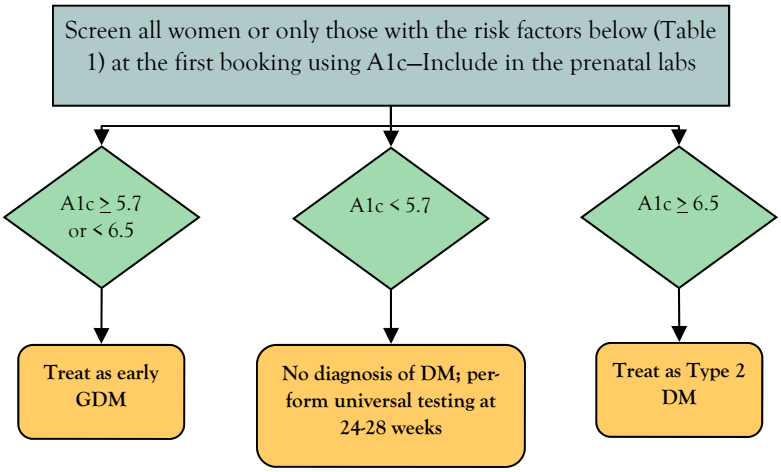

Table 1: Risk factors for undiagnosed type 2 diabetes/ prediabetes during pregnancy:

- Previous history of: gestational diabetes; macrosomia; unexplained stillbirth; malformed infant
- Family history of overt diabetes among first degree relatives
- High risk ethnic group: African American, American Indian, Hispanic/Latina, Asian/Pacific Islander, South-East Asian, East Indian
- Overweight or obesity
- Medications which adversely affect normoglycemia
- History of prediabetes or presence of glucouria
- Polycystic Ovary Syndrome (PCOS)

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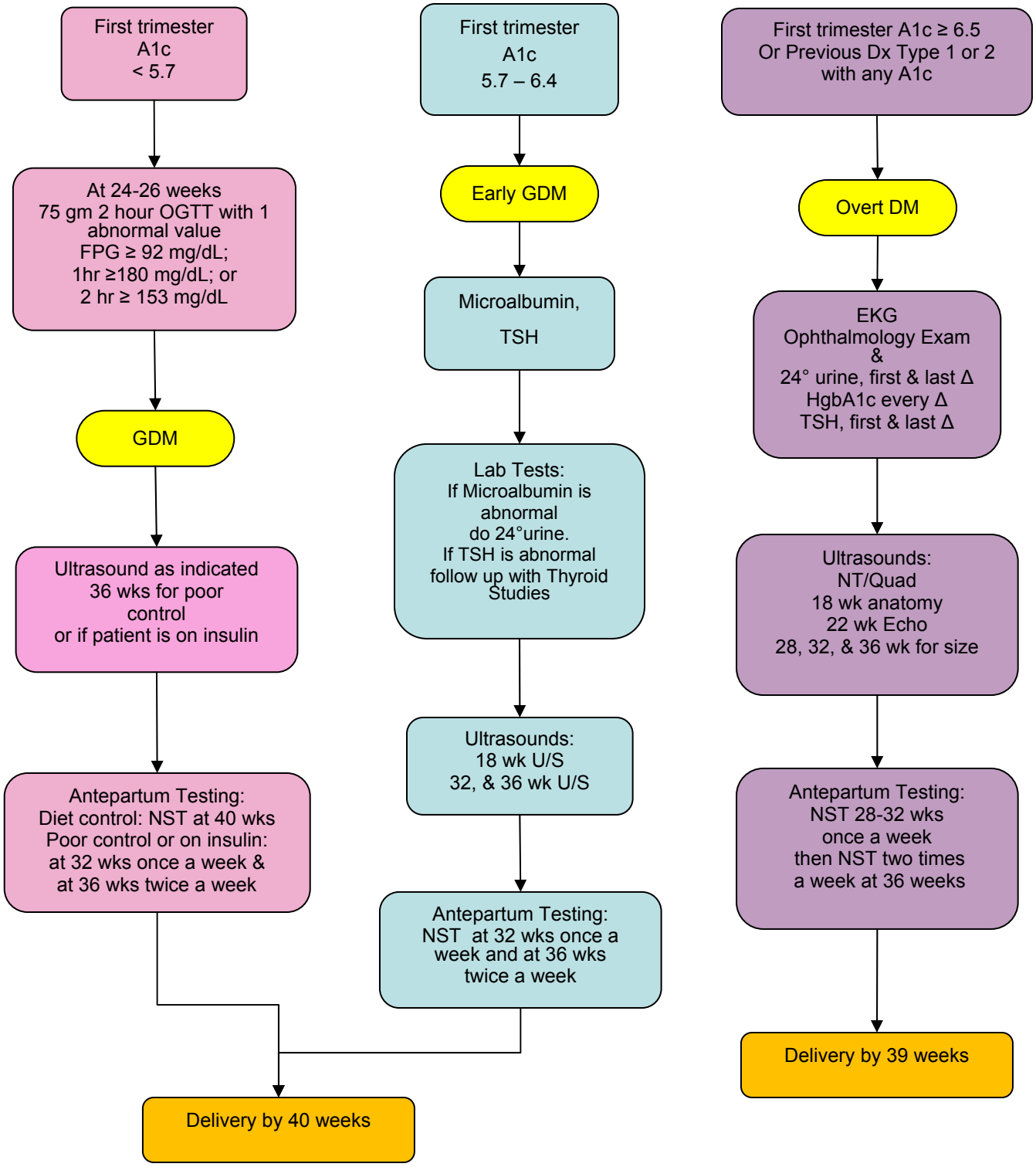
Diagram 3: GDM/DM Management Algorithm



*Prediabetes, HgbA1c level=5.7-6.4. FBG=100-125. Impaired fasting Glucose (IFG) and/or 2hr value=140-199, Impaired Glucose Tolerance (IGT)

*Jan. 2010 & March 2010 Diabetes Care & IADPSG recommendations for diagnosing diabetes during pregnancy.

CDAPP Regional Programs

Region 1 and 3
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(415) 76-9877

Region 2
Northeast Region
(916) 733-1705

Region 4
Mid-Coastal California Region
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Region 5
San Joaquin/Sierra Region
(559) 244-4546

Region 6.1
Miller Children's Hospital Perinatal Outreach Education Program
(562) 595-7930

Region 6.2
Harbor/UCLA Medical Center South Bay
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Region 7
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Region 8
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Region 11
Kaiser Permanente System-South
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CDAPP Resource Center
(858) 536-5090

Upcoming Educational Opportunities

September 13-14, 2010: Region 6.1 Sweet Success Diabetes and Pregnancy Training. Long Beach. For more information contact CDAPP Region 6.1 at (562) 595-6459 or eleal@memorialcare.org

September 14, 2010: Region 4 Sweet Success: The California Diabetes and Pregnancy –Advanced Affiliate Conference in Santa Cruz. For more information contact, Sanary Lou at (650) 736-2210 or sanraylou@stanford.edu

October 1, 2010: Regions 1 & 3: Diabetes and Pregnancy: Sweet Success Affiliate Sharing Day. San Francisco. For more information contact Griselda at (415) 476-9877 or maribeth.inturrisi@nursing.ucsf.edu

October 4, 2010: Regions 1,2, &3: Sweet Success Affiliate Training. Sacramento. For more information contact: Wendy Ly at (916) 733-1705 or email lyW@sutterhealth.org

November 4-6, 2010: Sweet Success Express Diabetes & Pregnancy National Research Conference Optimizing Outcomes. Anaheim. For more information contact PEC (800) 732-2387 or visit the website www.proedcenter.com

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